

Budgeting And Cost Estimation

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Dr. P. James Rathwell, Professor and Extension Agricultural Economist, Department of Agricultural & Applied Economics

Budgeting is the basic analytical tool that cattlemen use in making production and marketing decisions. It is the foundation of a good management program. The budgeting process involves estimating the income and expenses associated with the cattle operation. Once these estimates have been made, production and marketing alternatives can be evaluated in light of the goals and objectives of the individual cattle producer.

Budgets are the basic tool for management planning. They force producers to develop detailed estimates of income, expenses and resource requirements for their cattle business. A frequent spin-off of the development and analysis process is the owner's first real look at how the production, marketing, and financing aspects of his business are tied together.

Development of income and cost estimates help the producer manage his business. Specifically they will:

1. Call attention to the inputs and production practices required to run the cattle operation.
2. Provide much of the information necessary to project the operation's annual cashflow.
3. Provide valuable information for choosing farm production alternatives, cultural practices, and;
4. Provide the operator with the starting point of a marketing plan--"the break-even" cost of producing a calf.

Cattle budgets contain several cost categories. It is often difficult to determine which costs should be considered for which decision. There is disagreement among managers over which costs to include and how they should be measured. It is understandable that these differences should arise because each cattle operator's production cost is unique to his own resource situation.

While the way we measure and the items that we include in our estimation of cost are important it is even more critical that the cattle producer do something. Some knowledge of his cost of production is better than none. When it comes to running a business "ignorance is not bliss". For most decisions made by the cattle producer an absolute definitive estimate of his cost of producing a calf is not necessary. But, a working estimate of the expenses required to operate the business and what affect any change in these expenses might have on the business is a must.

The easiest way to estimate these costs is to use income tax Form 1040 Schedule F (Appendix A has a comparison of a Clemson Budget and Form 1040 Schedule F). This tax form provides just about all the information needed to develop a useable estimate of the annual costs of production. (The sole use of this form becomes more difficult if the producer also raises other livestock or crops). Additional information about the operator's financial position (loan payments) is also required.

The Clemson cattle budgets are a good way to organize cost classifications since it is readily comparable to Schedule F (Figure 1.) It divides the expenses associated with the production of cattle into categories that are easily related to the organization of a cattle operation. Costs are classified into Operating, Marketing, Fixed and Other categories.

Operating and Marketing expenses are the out-of-pocket costs of producing the animals. These include charges for fertilizer and lime, supplemental hay and feed, veterinary, fence maintenance, labor, etc., associated with the production of the calf and maintenance of the cow for a year. Marketing costs are those expenses directly related to selling the animals.

Fixed costs are the expenses that are not directly applicable to each animal but are incurred by the business whether or not any animals are produced. Examples of fixed costs are: depreciation of equipment and facilities, taxes and insurance. The category “other costs” is a catch-all item designed to handle expenses that are not easily allocated to the animal. Tools, utilities, tax preparation and advertising are examples of other costs. Land rent is also listed separately as a reminder that there is an “opportunity charge” associated with the use of pasture. If cattle were not grazing this land, it could be rented or sold and the money invested.

If the cattle farmer calculates all of the costs in these categories he will have a good understanding of his total production expenses each year. These costs reflect what must be paid to keep the business running today and in the future. These costs reflect the total expenses associated with the production of beef cattle. However, cattlemen do not write checks for depreciation, but equipment and facilities do wear out or become obsolete and must be replaced. Cattlemen do write checks to pay off loans taken out to replace equipment and facilities, and they frequently have other loans for the purchase of cattle and land. These loans are cash outlays that must be paid each year. It is suggested that principle and interest payments on loans for capital expenses can be substituted for depreciation.

The Clemson budget estimates of operating and marketing costs associated with a Coastal Plain cow-calf operation is \$301.33 per cow unit (Figure 1). Annual pasture maintenance expenses consisting of seed, lime and fertilizer are estimated to be \$199.43 per head. Supplemental feed and minerals are estimated to be \$60.53 per head. Veterinary expenses, maintenance of fencing and interest on operating money is estimated at \$10.00, \$5.00 and \$12.37 respectively, per head. Labor is assumed to be provided by the owner. Marketing costs are estimated to average \$6.53 for sales commission and \$7.47 for shrink per head.

Fixed costs are depreciation, insurance, taxes and interest on the cattleman's investment in the business. Depreciation categories include allowances for herd ownership, equipment and pasture establishment. Depreciation adds \$67.81 per head to the cost of producing a calf. Interest on average investment adds \$54.52 per head. Total fixed cost is estimated to be \$122.33 per head.

Other miscellaneous expenses (an overhead charge and land rent) are estimated at \$58.51 per head. Total cost of producing a calf in a 30 cow unit herd in the Coastal Plains of South Carolina is estimated at \$482.16 per head.*

*If surplus hay is produced and sold from pasture expenses, then the cost of production should be adjusted to reflect this income, hence, lowering the breakeven figures.

This is the Clemson Coastal Plain Cow-Calf budget estimate of what a cattleman in the lower part of the state has in each calf he produces. Based on this budget with no allowance for owner labor or profit it is \$482.16 per head. If we give the cattleman \$50 per head for his time and the use of his money to produce the calf then total cash cost would be \$532.16 per head. This is truly expensive.

In actuality, depreciation is not an out-of-pocket cost of production. It is more often classified as a “retirement account” for worn out assets. Businesses frequently substitute the principle component of the debt service expense for depreciation. Interest on average investment is also replaced by the interest component of the debt payment. Assuming the total annual debt payment for land, cattle and equipment is \$1453 per year then our 30 cow herd would have a debt commitment of \$48.43 per head.

Frequently, the best estimate of the cost of producing these calves is referred to as a cash or cash flow cost. This estimate includes the operating, marketing, taxes, insurance and any debt payment expenses associated with producing an animal. In general, this is a good estimator of the cost of production. It reflects annual out-of-pocket needs and includes the debt costs that are frequently the most expensive part of being in the cattle business. Using the Clemson budget this out-of-pocket expense estimate is \$ 373.27 per head (\$301.33 operating and marketing, \$48.43 debt service and \$23.51 miscellaneous expense).

Now that we know the cost of producing a calf, how does this help the producer market his calves? The cost of production must be converted from a per head figure to a per hundredweight estimate. To do this the producer must know the pounds of beef that he produces on an annual basis. The budget indicates that steers, heifers and cull cows are sold giving a net pay weight (net of shrink) of 16,665 total pounds or 555.5 pounds per cow in the herd. The break-even price for each calf sold is then \$67.19 per hundredweight ($\$373.27/5.555\text{cwt}$). This is the price the cattleman must average across all calves sold in order to cover all of his out-of-pocket costs incurred during the production year. Any market price below this and he is losing money.

This cost estimate does not provide the producer with any profit or return for his labor. If the producer wanted a return of \$50 per head above his cost of producing a calf his expenses would increase to \$423.27 per head or \$76.19 per hundredweight. This is the “target price” used to evaluate marketing alternatives.

The same procedures can be used to calculate the cost of producing stocker cattle in South Carolina. A Clemson budget for stockering calves on small grain pasture is shown in Figure 2. Calf procurement expenses are \$272.70 per head. Small grain pasture expenses are estimated to be \$43.43 per head. Supplemental feed and mineral expenses are \$20.25 per head. Veterinary and growth promotent costs are estimated to be \$11 per head, and interest charges are estimated at \$13.03 per head. Marketing expenses are estimated to run \$20.86 per head. Total operating and marketing expenses for the stocker operation are estimated at \$381.27 per head. Fixed and other costs are estimated to be \$9.85 and \$14.54 respectively, per head. Total costs are placed at \$405.66 per head. On a per hundredweight basis this amounts to \$50.71 (\$405.66/800lbs).

In summary, developing good cost of production estimates starts with maintaining good records. For most cattle producers these estimates can be readily obtained from their income tax Form 1040 Schedule F. This section has classified the cost of producing calves into operating, marketing, fixed and other categories. It has also suggested that the best approach for the producer is to consider out-of-pocket expenses that include operating, marketing, debt payment and miscellaneous expenses. Regardless of the method used to calculate production costs the development and use of this information is a must in today's business environment. Only after a cost estimate has been developed can the producer start to plan his marketing efforts.

Estimating your cost of production -- A planning guide

The following questions are presented as a guide to your attempt to produce a cost of production estimate for your beef cattle operation. They are not all encompassing but should help you to remember the critical points of the discussion on estimating the cost of production.

1. Costs were classified into operating, marketing, fixed and other. Utilizing the format provided in the Clemson Budgets first take your records and tax forms and estimate “your” operating and marketing costs. Items should be easily found in purchase invoices and sales receipts or from tax Form 1040, Schedule F. Use the Clemson budget as a guide. Ask this question, does each category fit your operation? If a specific category is not needed skip it or substitute a more appropriate one.
2. Fixed costs are somewhat more difficult to develop. Start with any bank or Farm Credit statement or Schedule F (interest). Insurance payments and taxes are generally available on tax forms or statements sent directly to you by insurance companies and the county tax assessor's office.
3. “Other costs” can also be difficult to find but if you search your check stubs and utility statements (phone, water or electricity) you may jog your memory. Land rent charges are important to many operators but not to others. If you feel that there would be little use for your land if it was not devoted to cattle production then leave it out of your calculations. If it is important then use a charge equal to local cash rent for pasture in your area.
4. Total cost is the summation of the above three categories.
5. The next step is to convert the estimate to a per head and per hundredweight figure. Per head is calculated by dividing the total cost by the number of cows that have calved. I think this is the best divisor because it reflects the carrying costs of open and bred heifers, open cows and bulls back to the animal that is responsible for the money coming into the business -- namely the calving cow. It shows that nonproducing animals can be very expensive. Conversion to a per hundredweight basis is also easy and straight forth. From your sales records add up the pay weights for steers, heifers, cull cows and bulls. This figure is then divided into the total cost estimate to give you the cost per hundredweight of calf sold.
6. This cost per hundred weight is the figure needed to start your market planning. Consider it to be your entry position into the market place for your cattle.

Figure 1. Coastal Plain Cow-Calf Operation with Cows Fed on Fescue Hay and Cotton Seed for 110 Days

	Unit	Quantity	Cost	Cost for Herd	Cost Per Cow Unit
CASH OPERATING COSTS:					
SEED, LIME, FERT. **	ACRE	75.00	\$77.48	\$5,810.85	\$193.70
MACH. FUEL. & REPR. **	ACRE	75.00	\$2.29	\$171.75	\$5.73
COST TO HARVEST HAY	TON	33.00	\$25.48	\$840.95	\$28.03
HAY PURCHASED	TON	0.00	\$60.00	\$0.00	\$0.00
COTTON SEED	CWT	165.00	\$5.00	\$825.00	\$27.50
SALT AND MINERALS	COW	30.00	\$5.00	\$150.00	\$5.00
VET & MEDICATION	COW	30.00	\$10.00	\$300.00	\$10.00
FENCE MAINT. ETC. **	ACRE	75.00	\$2.00	\$150.00	\$5.00
MISCELLANEOUS	UNIT	1.00	\$0.00	\$0.00	\$0.00
INTEREST ON OP MONEY	6 MONTHS	9.0%	\$8,248.55	\$371.18	\$12.37
LABOR, FORAGE ***	ACRE	75.00	\$0.00	\$0.00	\$0.00
LABOR, PER COW ***	HRS	150.00	\$0.00	\$0.00	\$0.00
MARKETING:					
SALES COMMISSION	HEAD	28.00	\$7.00	\$196.00	\$6.53
SHRINK ON CALVES	%	3%	\$7,468.45	\$224.05	\$7.47
HAULING	MILE	0.00	\$1.80	\$0.00	\$0.00
TOTAL CASH OPERATING COST:				\$9,039.79	\$301.33
INCOME ABOVE CASH OPERATING COSTS (GROSS MARGIN):				\$2,02.66	\$73.42
FIXED COST:					
DEPRECIATION*	HERD	1.00	\$572.50	\$572.50	\$19.08
INTEREST*	HERD	1.00	\$1,635.50	\$1,635.50	\$54.52
INSURANCE*	HERD	1.00	\$0.00	\$0.00	\$0.00
FORAGE, MACH. DEPREC. **	ACRE	75.00	\$12.12	\$909.00	\$30.30
FORAGE ESTAB. COST **	ACRE	75.00	\$7.37	\$552.75	\$18.43
TOTAL FIXED COST:				\$3,669.75	\$122.33
NET RETURN TO OVERHEAD, RISK, MANAGEMENT, AND LABOR:				(\$1,467.09)	(\$48.90)
OTHER COSTS:					
OVERHEAD CHARGE	%	8.0%	\$8,815.73	\$705.26	\$23.51
LAND RENT **	ACRE	75.00	\$14.00	\$1,050.00	\$35.00
TOTAL OF OTHER COSTS:				\$1,755.26	\$58.51
TOTAL COST				\$14,464.80	\$482.16
RETURNS TO MANAGEMENT, RISK AND LABOR:				(\$3,222.35)	(\$107.41)

*See Investment Table **See Forage Table ***Assumes Family Labor Used.

Figure 2. Stockers on Small Grain Pasture

	Unit	Quantity	Cost	Cost per Head
CASH OPERATING COSTS:				
STEER CALF	LBS	450	\$0.60	\$270.00
PROCUREMENT:				
ORDER BUYING	CWT	4.5	\$0.30	\$1.35
HAULING	MILE	70	\$1.80	\$1.35
SMALL GRAIN PASTURE*	ACRE	0.5	\$74.85	\$37.43
CORN (3.5 LB/DAY, 30 DAYS)	BU	2	\$3.25	\$6.50
HAY (11.5 LB/DAY, 30 DAYS)	TON	0.175	\$70.00	\$12.25
SALT AND MINERALS	HEAD	1	\$1.50	\$1.50
VET. AND MEDICATION	HEAD	1	\$7.00	\$7.00
GROWTH PROMOTANT	HEAD	1	\$4.00	\$4.00
MAINT; REPAIR & FUEL	HEAD	1	\$6.00	\$6.00
INTEREST ON OPER MONEY	\$/HEAD	9.0%	\$347.38	\$13.03
LABOR	HRS	3	\$0.00	\$0.00
MARKETING:				
SALES COMMISSION	HEAD	1	\$7.00	\$7.00
SHRINK	%	3%	\$462.00	\$13.86
HAULING	MILE	0	\$1.80	\$0.00
TOTAL CASH OPERATING COST:				\$381.27
INCOME ABOVE CASH OPERATING COSTS (GROSS MARGIN):				\$66.87
FIXED COST:				
CATTLE OPERATION	HERD	1.00	\$7.00	\$7.00
PASTURE	ACRE	0.5	\$5.70	\$2.85
NET RETURN TO LAND, OVERHEAD, RISK AND MANAGEMENT:				\$57.02
LAND	ACRE	0.5	\$13.50	\$6.75
OVERHEAD CHARGE	%	8%	\$97.41	\$7.79
(8% OF CASH OPERATING COST LESS COST OF CALF)				
TOTAL COST				\$405.66
RETURNS TO MANAGEMENT AND RISK:				\$42.48

Assumes small grain pasture is double-cropped with soybeans and costs associated with soybeans are subtracted. If the small grain pasture is not double-cropped, the variable cost would be \$105.17 And the fixed cost \$22.90.

Appendix A

Comparison of Clemson Cattle Budget Classifications with Tax Form 1040, Schedule F

Variable Costs	
Clemson Budget Classification	Schedule F Classification
1. Seed, lime, fertilizer	Line 13 Chemicals Line 19 Fertilizer and lime Line 28 Seeds and plants purchased
2. Mach, fuel, and Repair Fence, maintenance, etc Supplies	Line 12 Car and Truck Expense Line 21 Gasoline, Fuel and Oil Line 27 Repairs and maintenance
3. Cost to harvest Hay Hay Purchase Cotton seed Salt and minerals	Line 15 Custom hire Line 18 Feed purchase
4. Vet and medication	Line 33 Veterinary, breeding and medicine
5. Miscellaneous (taxes, utilities)	Line 34 Other expenses
6. Operating interest	Line 23 Other interests
7. Labor Forage Labor Cow	Line 17 Employees benefit package Line 24 labor
Fixed Costs	
8. Depreciation (cows, fence, etc.) Forage machinery depreciation Forage establishment cost	Line 16 Depreciation
9. Interest	Line 23 Interest Mortgage
10. Insurance	Line 22 Insurance

For Additional Information Contact:

Dr. Larry W. Olson, Extension Animal Scientist
 Edisto Research & Education Center
 64 Research Rd., Blackville, SC 29817
 Email: LOLSON@clemson.edu
 Phone: 803-284-3343 ext 231 Fax: 803-284-3684
<http://www.clemson.edu/extension/bulltest>